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nations (currently, better data are available on pledges than on disbursements) and the private and NGO sectors. The Italian Cooperation is currently sponsoring a project to improve national health accounts.

Hospital Cost and Discharge Data Systems Should Be Strengthened. Stronger national hospital data systems, including systems that capture patterns of cost and use (i.e., discharges), are likely to facilitate improvement of health system management practices. The World Bank and the MOH are planning a development project in this area based on the discharge system of the European Hospital in Gaza. In addition to a hospital discharge system, the Palestinian health system is likely to benefit from a national hospital cost accounting system to be used by both public and private hospitals in Palestine.

Data Should Be Collected on Outpatient Costs and Health Care Use. The MOH and other organizations currently collect and report data on the use of many types of outpatient care. These data are reported, for example, in the annual MOH reports on health in Palestine. However, current data are fairly limited, particularly with respect to costs and services provided in the private and NGO sectors. Enhanced data in these areas are also likely to facilitate health system planning and program evaluation. Comprehensive monitoring of outpatient use and costs may be expensive, and policymakers should balance the benefits of ongoing monitoring against the costs of data collection.

Medical Records and Clinical Screening Systems Should Be Strengthened. As noted above, the MOH and the World Bank are currently piloting an improved clinical information system in a small number of clinics, and the MOH and Birzeit University are developing new pediatric charts. Screening of newborns for phenylketonuria (PKU) and congenital hypothyroidism began during the 1980s, but screening for congenital hip dislocations, heart defects, thalassemia, and other congenital conditions is less common. Similarly, screening of adults for chronic disease risk factors is not currently widespread.

New charts and clinical information systems will require systematically training clinic staff to use the new systems. Improved screening and diagnosis must be accompanied by appropriate follow-up services when problems are detected; these should include treatment referrals, patient education, and social support services.

Pharmacy Data Systems Should Be Strengthened. Improved data on pharmaceutical inventories and use will help to strengthen national pharmaceutical policy. The MOH and the World Bank are currently piloting an information system for primary care clinics that includes a prescription drug module.

Regional and International Systems for Data Exchange Should Be Strengthened. Health in Palestine is closely bound to health in Israel, Egypt, Jordan, and other countries in the region, because many population health issues are common across the region and/or have the potential to cross borders. As a result, these and other relevant countries are likely to benefit from development of ways to rapidly and accurately

exchange epidemiological data, particularly regarding infectious disease. Some such mechanisms are currently in place, particularly between the MOH and Israel. However, these mechanisms require strengthening and expansion.

Health Data Should Be Used More Systematically to Inform Policymaking and Management. In general, Palestinian health information systems are likely to be most useful if they are computerized. We recognize that this is likely to involve considerable investment, and that planners must evaluate technologies carefully to maximize the efficiency and sustainability of national data systems.

Effects of Restricted Domestic Mobility. Restricted mobility would inhibit or prevent the collection of most types of data described in this subsection.

Effects of Restricted International Access. Regional and international systems of data exchange will be more difficult to implement effectively if Palestinian professionals have limited access to foreign countries, particularly Israel or Jordan. Other health information systems are mostly implemented domestically.

Research

Background. Several universities and NGOs in Palestine currently conduct public health and health services research. However, these existing capacities are weak for the same reasons that evaluation capacity is weak. (Evaluation capacity was discussed above, in "Health Care Quality Improvement.") Moreover, there are currently few established clinical or basic science research programs in Palestine. The lack of such programs is likely to limit medical education and efforts to improve clinical care, particularly secondary and tertiary care.

Recommendation: Palestinian Policymakers Should Develop National Strategies Regarding Public Health, Health Services, Clinical, and Basic Science Research. Such strategies are important complements to the national health plans and the *National Plan for Human Resource Development and Education in Health.* Indeed, there is explicit overlap with components of these plans.

We recognize that the Palestinian health system faces significant resource constraints and that efforts to develop research capacity must be realistic and appropriate in this context. However, systematic expansion of research capacity is likely to have a number of benefits for the Palestinian health system. For instance, in addition to producing output that is scientifically valuable per se, clinical research programs are likely to contribute to the training of future clinicians and health system leaders. They may help foster international respect for Palestinian institutions, as the Israeli Weizman Institute of Science illustrates with respect to Israeli institutions. Research programs may also help generate revenue.[35] In addition to the Weizman Institute, other local models

[35] Interview participants particularly mentioned inheritable genetic disorders as an area where there might be considerable demand—and external financing—for scientific collaboration with international institutions, because of the relatively high prevalence of some such conditions among Palestinians.

might include the Lebanese Council for Scientific Research and the Jordanian Higher Council of Science and Technology.

Strategies to develop health research capacity in Palestine will require cooperation among government, academic institutions, NGOs, and international donors. Cooperation regarding research and training with centers of excellence in Israel and other neighboring countries is also likely to be very beneficial.

Many Palestinians with relevant skills currently live abroad, and efforts should be made to recruit members of the Palestinian diaspora to visit or work at Palestinian research institutions. Also, Palestinian research programs are likely to benefit considerably from international partnerships, for instance with Israeli and Jordanian organizations; among other benefits, such partnership may help attract external research funding.

Effects of Restricted Domestic Mobility. The effect of restricted mobility on research programs will vary by the type of research. In particular, research involving population-based data collection will be inhibited. Basic science and some clinical research depends less on population access and would correspondingly be less affected (although, of course, the researchers themselves need to be able to reach their jobs). As described above, restricted mobility will inhibit the economic viability of a Palestinian state and correspondingly reduce the resources available for research.

Effects of Restricted International Access. As with other areas of human resource development, successful development of Palestinian research capability will require that Palestinian students and faculty have access to foreign institutions and that Palestinian institutions be able to recruit foreign faculty (and, to a lesser degree, students).

Programs for Rapid Improvement

Background. As we noted at the beginning of this chapter, our principal analytic focus is on the institutions that would be needed for the successful operation of the Palestinian health system over the first decade of a future independent Palestinian state. Given this mid- to long-term policy perspective, we have so far included relatively little discussion of the type and quality of health services being provided in Palestine. We believe that strengthening the "macro-level" institutions on which we have focused will ultimately increase the efficiency and effectiveness of health care and improve health status throughout Palestine.

In this subsection, however, we diverge from our general approach and consider several specific programs that would directly and rapidly improve the health and health care of Palestinians. There are several reasons for this shift in focus. Rapid improvements are, of course, worthwhile in their own right. In addition, improving health conditions in the short run may also help to achieve longer-run development goals.

At a macro-level, social conditions in Palestine since 1994—including health—have not improved as much as many people had hoped or expected. Many factors have contributed to this lack of improvement, including political and armed conflict, but

also ineffective governance and weak policy development and implementation. The lack of improvement has certainly undermined support for the PA and its institutions and for the peace process overall. Indeed, many interview participants and other observers suggested that the slow improvement in quality of life for many Palestinians contributed directly to the outbreak of the second intifada.

At a more micro-level, a dual strategy of pairing short- and longer-term development efforts may contribute to staff and organizational morale. Interview participants noted that boosting morale is particularly important for organizations that place heavy emphasis on humanitarian assistance in response to current conditions. Indeed, we encountered many organizations that were pursuing projects with various planning horizons, from immediate humanitarian aid to multiyear efforts to develop human and physical infrastructure. Overall, we were consistently impressed by the scope of both short- and long-term development projects that we observed.

In sum, whatever the strengths of the Palestinian health system, there are clearly acute areas of need, and all stakeholders are likely to benefit by addressing them effectively and rapidly. In this context, we make the following recommendations.

Recommendation: The MOH Should Implement Comprehensive Programs to Improve Nutritional Status, Including Food Fortification, Micronutrient Supplementation for High-Risk Groups, and Promotion of Healthy Dietary Practices. Available evidence suggests an urgent need to improve nutritional status in Palestine. Studies have shown persistently high levels of anemia at all ages, based on blood testing and dietary intake studies; malnutrition, particularly among children via anthropometric monitoring; vitamin A deficiency, based on dietary intake studies (a blood study of vitamin A is currently pending); and other nutritional problems. Moreover, there is some evidence that the rates of micronutrient deficiency and malnutrition have increased since the outbreak of the second intifada. Poor nutritional status is a well-recognized cause of short- and long-term health problems across the lifespan, including complications of pregnancy, birth defects, heart disease, cancer, osteoporosis, and other conditions. It also impairs children's psychomotor development and later educational performance, including delay in school enrollment, increased absenteeism, impaired concentration, and increased susceptibility to infectious disease—issues that are less commonly emphasized in the development of nutrition policies.

Although a number of efforts to strengthen nutritional status—and the nutrition policies of the MOH—are currently under way, these efforts needed to be consolidated, expanded, and institutionalized. Such efforts will require cooperation among the MOH, UNRWA, and other stakeholders to develop and implement coordinated, comprehensive national programs to improve nutritional status in Palestine, particularly among children and women of childbearing age. Based on scientific evidence, these programs should include fortification of common foodstuffs with vitamins A and D, iron, and folic acid (folate); and provision of vitamin and mineral supplements to children at least through age two and to childbearing women before, during, and after

pregnancy. The government health system provided such supplements to infants in the past, but this practice was discontinued in the mid-1990s. The need for supplements prior to pregnancy would be reduced by an effective national fortification program that includes folate.

Recommendation: The National Immunization Program Should Be Updated, and the Costs of Purchasing and Distributing Vaccines Should Be Explicitly Covered by the Government Budget. Immunization programs have been one of the great strengths of the Palestinian health system since the 1970s, with high coverage of a progressive program of vaccines. However, the Palestinian vaccination schedule needs to be updated somewhat, particularly to reflect the availability of new vaccines such as hepatitis A, haemophilus influenza B, and varicella. Each of these is now included in the Israeli vaccination program.

For several years following 1994, the MOH budget explicitly provided for purchase and distribution of all vaccines covered by the national immunization program. However, this practice was discontinued in response to budget pressures, and the immunization program has subsequently relied on international donations of vaccines. In our view, the latter practice is unlikely to guarantee the continuous availability of high-quality vaccines to the Palestinian health system, and the former policy should be reinstated.

Recommendation: The MOH and Other Stakeholders Should Expand the Scope of Available Primary Care Services and Expand Access to Comprehensive Primary Care. As we have described, primary care is the current and intended future cornerstone of the Palestinian health care system. However, certain aspects of primary care—as it is commonly defined—require considerable strengthening. These include health promotion and disease prevention, which also need to be strengthened in schools and elsewhere in society; screening and diagnosis, particularly of child developmental disorders and adult chronic and noncommunicable diseases; reproductive health services, including family planning; and psychosocial support and mental health care, for which there are both considerable societal need and a particular shortage of appropriately trained providers. Efforts to strengthen these areas will require cooperation across stakeholders, including the MOH, UNRWA, relevant NGOs, and international donors.

The relative importance of the primary health care delivery system has increased since the outbreak of the second intifada, because primary care clinics are widely distributed and thus relatively accessible during periods of restricted mobility. Geographic closures have also strengthened the role of nurses and other nonphysician professionals, because these staff tend to live closer to the primary care clinics and have been more consistently available to patients than physicians during periods of closure. Some interview participants regarded the resulting change in practice patterns as beneficial for patients, even if it arose for negative reasons. However, interview participants expressed concern that, when closures lift and economic conditions improve, the MOH and other providers are likely to shift resources away from primary care and toward

secondary and tertiary care. In our view, such a shift would be both clinically and economically undesirable for the Palestinian health system.

In the short run, efforts to strengthen health promotion and disease prevention could include additional training and empowerment of health educators, social workers, skilled lay people such as village health workers, community groups, and others. However, the number of such people is currently limited and should be increased over time. Key substantive issues to be addressed include public health issues such as sanitation and water quality; traffic, home, and workplace safety; diet and nutrition; physical activity; cigarette smoking; domestic violence; and clinical issues such as developmental disorders, psychosocial problems, and chronic illness.

There is also a need to strengthen treatment programs—sometimes referred to as "tertiary prevention"—for chronic diseases, particularly diabetes, heart disease, and hypertension. As we understand it, these areas have received relatively little emphasis from NGOs and international donors. However, they represent a considerable and increasing fraction of the overall burden of disease among Palestinians. Moreover, there is increasing scientific evidence that many of these conditions can be effectively—and cost-effectively—managed in primary care.[36]

Recommendation: The MOH and Other Stakeholders Should Develop Comprehensive Strategies for Addressing Psychosocial Needs, Particularly Those Relating to the Exposure of Children to Violence. There is an urgent need to strengthen psychosocial support to help mitigate the consequences of the physical, economic, social, and political stressors that have been prevalent in Palestine. Perhaps most notably, there has been considerable exposure to violence from armed conflict, particularly since the start of the second intifada. Yet there is very limited capacity in the health system—and in the education system and other parts of society—to address the developmental and other consequences of these stressors.

One important step is to strengthen psychosocial support and mental health care in primary care, as noted above. However, successful efforts to address psychosocial needs should extend beyond the health care delivery system. In particular, psychological and developmental problems are stigmatized in Palestine, as elsewhere. Patients and family members may not recognize such problems or view them as treatable, and they may be reluctant to seek care in any case. Providers may not diagnose problems correctly, particularly if patients present with somatic complaints; and they may not recommend effective treatment. For these and other reasons, successful strategies are likely to require community-wide collaboration, involving various parts of the health system, the school system, religious institutions, community groups, and other stakeholders. They should include screening, outreach, and other proactive strategies. Proactive strategies are generally valuable for addressing psychosocial problems and particularly for

[36] These issues are also discussed above, in the context of health care finance and quality improvement.

treating psychological trauma; indeed, relatively few trauma victims receive effective care in the absence of outreach programs.

Several relevant programs already exist, including clinic- and school-based programs to address issues among children. These efforts should be continued, but most such programs that we know of are small (one notable exception is the Classroom-Based Intervention program, sponsored by USAID). More generally, we note that the WHO began a new program in 2003 focusing on improving mental health in Palestine. Addressing unmet psychosocial needs will require major increases in qualified personnel, including psychiatrists, psychologists, social workers, school counselors, and qualified lay workers. It will also require the development, dissemination, and support of effective intervention strategies for addressing particular problems, such as psychological trauma among children.

Effects of Restricted Domestic Mobility. Restricted mobility would inhibit successful achievement of all the recommendations in this subsection. Both nutrition and immunization initiatives require transport of supplies and personnel, which will be more difficult under restricted mobility. Similarly, training—whether of health professionals or of consumers—will be more difficult to implement successfully.

As we have described, the role of primary care increases under conditions of restricted mobility, because primary care facilities are more widely accessible. Under such circumstances, however, primary care clinics will necessarily emphasize curative care, and there is likely to be little opportunity to expand the scope of care in the areas described above. Similarly, it will be more difficult to expand systems of psychosocial care under conditions of restricted mobility, because training, planning, and implementation will be inhibited. Moreover, as discussed above, restricted mobility is likely to reduce the economic viability of the state, and with it the resources available for expanding health system capacity.

Effects of Restricted International Access. All the services discussed in this subsection would mainly be provided domestically. However, as with other areas of health system development, the expanded capabilities recommended here will be easier to achieve if Palestinian health professionals have access to technical assistance from abroad and to training in foreign institutions.

Priorities and Timing

As we have described, we believe that the specific priorities for health system development should be determined locally. To this end, we have focused on describing institutions, policies, and programs that are essential for local stakeholders to be able to undertake such priority setting effectively.

In this context, we believe that Palestinian health system development efforts should begin with our first area of emphasis: establishing a planning and coordination

authority with adequate power to develop and implement national policy for the Palestinian health system. Indeed, nearly all our interview participants expressed the view that this should occur immediately, not just when an independent Palestinian state is established.

The planning and coordination body would be responsible for reforming policies regarding health insurance and health care finance. It would also oversee the establishment and strengthening of the key institutions described in most of our other recommendations, i.e., licensing and certification of health professionals; licensing and accreditation of facilities, programs, and educational institutions; implementation of national quality improvement strategies; oversight of pharmaceuticals; and collection of national health data.

While we recognize that resources will be scarce, we believe that these institutions are all essential for the successful development of the Palestinian health system. However, the level of available resources will certainly affect the policies and priorities that these institutions pursue. For this reason, among others, we recommend that major new infrastructure projects be deferred until the relevant institutions are in place to ensure that projects are consistent with national priorities and can be implemented effectively.

With respect to research, we believe that efforts to establish research capabilities could begin at any time and that these capabilities should grow slowly but steadily. Finally, the "rapid improvement" recommendations made in the last subsection should be implemented as soon as possible because they have the potential to produce tangible improvements in quality of life for many Palestinians.

Cost

One objective of RAND's project is to estimate the costs involved in strengthening the institutions of a future independent Palestinian state. A general estimate is provided below. However, a detailed estimate of the costs associated with implementing the recommendations made in this chapter is outside the scope of our analysis. Such an estimate will depend on the specific policy choices that local stakeholders make to address each recommendation, which of course are currently unknown, and on details of the current system that were unavailable for this analysis. For instance, the cost of licensing and accrediting health care facilities or educational programs will depend on the licensing and accreditation standards that are ultimately selected for Palestine and on the extent to which current facilities and programs fall short of those standards. Although we could estimate the cost of the licensing and accreditation process per se, using this cost alone is likely to be misleading. The costs of upgrading to meet new standards are likely to dwarf the costs of reviewing programs and of approving or denying their license/accreditation.

In this section, we therefore consider health system development costs from a macro perspective. Our policy recommendations in this chapter focus primarily on

incremental reforms to the Palestinian health system, rather than on radical restructuring. As a frame of reference for considering the scale of future investments in the Palestinian health system, we therefore consider two kinds of information: recent levels of per-capita health system spending in Palestine and the level of health system development efforts since 1994.

In 1998, prior to the second intifada, total annual Palestinian health spending was estimated at $100–$111 per capita. Since the start of the second intifada, economic conditions have declined dramatically. Health sector spending has correspondingly declined, although exact data on current per-capita health sector spending are not available. For present purposes we assume a current level of spending of $67 per person per year, 60 percent of the pre-intifada level.[37]

According to World Bank data for 1997–2000, annual per-capita spending of $111 is very close to the average expenditure of $116 observed among "middle income" countries, as defined by the World Bank; higher than the level observed among "lower middle income" countries ($72); and about one-third the level observed among "upper middle income" countries ($309). Palestinian gross national product per capita ($1,771 in 2000) compares similarly with that of "middle income" countries ($1,860), while "lower middle income" ($1,230) and "upper middle income" ($4,550) countries vary accordingly. In terms of other countries in the region, per-capita health spending of $111 is higher than that reported for Syria ($30) and Egypt ($51), but it is lower than per-capita spending in Jordan ($137), Saudi Arabia ($448), Lebanon ($499), and Israel ($2,021).

The 1998 level of per-capita spending corresponded to total annual health sector expenditures of $320 million to $344 million (given a population of approximately 3.1 million). Of these expenditures, approximately $40 million per year came in the form of international aid. International donations to the Palestinian health system totaled approximately $227 million between 1994 and 2000, an average of $38 million per year. For comparison, disbursement of international donations across all sectors in Palestine was $3.1 billion over the same period, an average of $512 million per year. Thus, slightly over 7 percent of total international donations were directed to the health system. Since the start of the second intifada, considerable international contributions to the health sector have continued, but their focus has shifted a great deal toward humanitarian relief. Detailed information on the distribution of health sector expenditures between operating expenses and capital investment is unavailable; based on available data, however, we estimate that capital investment was on the order of $40 million to $50 million per year.

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[37] Based on data from PA MOH, 2003a, Palestinian gross national income (approximately equivalent to GNP) was $1,070 per capita in 2002, 60 percent of the level reported for 2000. To our knowledge, the MOH has not reported national health expenditures for 2001 or 2002; for present purposes, we assume that per-capita health spending has fallen in proportion to national income.

In this context, we estimate that a constructive level of external support for the Palestinian health system over the first decade of an independent state would be $130 million to $165 million per year, in year 2003 U.S. dollars. Over the ten-year period 2005–2014, this level of external support would total $1.3 billion to $1.65 billion.

This estimate is based on the assumption that the Palestinian health system will require a relatively large amount of resources in the first year or two of an independent state to restore per-capita spending to pre-intifada levels and beyond. At a conceptual level, at least, we regard the pre-intifada level of spending as a sustainable baseline under conditions of peace.

In terms of health sector improvement, we estimate that such contributions would support increasing annual per-capita health sector spending from the estimated current level of $67 to between $122 and $197 per person per year. This estimated effect on per-capita spending assumes that increases in external contributions following the establishment of an independent Palestinian state would be accompanied by increases in other health sector funding (i.e., taxes, insurance premiums, co-payments, and private investments/donations). The higher per-capita spending estimate ($197) assumes that these other funding sources would grow enough to keep the fraction of total health sector spending contributed by external funding at the 1998 level (13.2 percent, or approximately $45 million in external funding out of total health sector spending of $340 million). The lower per-capita spending estimate ($122) assumes that domestic funding sources would rise disproportionately more slowly than external sources, and that the latter would make up three times that proportion of new health sector spending.

Estimated effects on per-capita spending assume an initial population of 3.5 million people (i.e., approximately the current level), and a population growth rate of 4 percent per year, consistent with conditions described in Chapter Four. If the annual rate of population growth were 3 percent, this level of external support would increase per-capita spending to between $130 and $217 per person per year (maintaining all other assumptions). Our estimates do not account for "health care inflation"—i.e., the tendency (particularly in developed countries) for health care costs to increase, principally because of the introduction of new products and procedures.

Our estimates are informed by, and broadly consistent with, previously published estimates of the resources needed for health sector development. In particular, in the Palestinian development plan, 1999, the PA estimated that donations of about $60 million per year would be needed for development of the government health sector during 1999–2003. This is about half again as much per year as the average annual level of donations during 1994–2000, and more than twice the annual level of donations that went to the government sector during that period (the rest went to NGOs and UNRWA). A separate calculation for the health system overall, presented in Barnea and Husseini (2002), estimated that the shortfall between health system revenues and the expenditures needed to maintain the system at 1998 levels was between

$50 million and $100 million per year for 2001–2004. The amount increases over time because of population growth.[38]

If spent effectively, external support of $130 million to $165 million per year should yield tangible improvements in the Palestinian health system. In terms of per-capita spending, the Palestinian health system would remain below those of some of its more economically advanced neighbors, such as Lebanon, Saudi Arabia, and Israel. Further donations might raise the standards of the health system further. At the same time, this level of external support is three to four times the average annual level of international donations from 1994 to 2000. We believe that the Palestinian health system would have difficulty successfully absorbing international donations of much more than this, and that higher donations would risk waste and disruption (e.g., because of capacity constraints in human and physical capital). Over time, as the Palestinian health system—and the Palestinian economy—becomes more advanced, its ability to absorb and use outside investments efficiently will increase.

We note that, if responsibility for the health system of East Jerusalem were transferred to a future Palestinian state, additional resources would be needed to maintain current patterns of care and reimbursement in East Jerusalem. This issue requires separate analysis that is outside the scope of this chapter. Similarly, water and sanitation infrastructure is excluded from this analysis, but it is discussed in detail in Chapter Six.

Finally, we have based these analyses on data regarding total and per-capita health system spending for Palestine and other areas. We could not determine definitively whether these data capture spending in all areas addressed in this chapter. If particular areas, such as educational programs for health professionals or research, are generally excluded from these data, our estimates of constructive levels of external support for the Palestinian health system would correspondingly need to be revised.

Discussion

In this chapter, we have described a variety of options for strengthening particular aspects of the Palestinian health system, with the goal of improving health and health care for the Palestinian people in the context of an independent Palestinian state. Our recommendations (summarized in Table 7.4) were developed based on considerable input from Palestinian, Israeli, and international professionals who are currently involved in the Palestinian health system or were involved in the past.

Considerable effort will be required to implement the recommendations we have described. In our view, however, such developments are well within the reach of the Palestinian health system, assuming that the larger political and security environment

[38] These estimates were prepared prior to the second intifada. Since then, tax revenues, health insurance premiums, and household incomes (which support patients' out-of-pocket spending) all decreased substantially. Deficit estimates under these circumstances would have been correspondingly higher.

is favorable and that resources are available. Whenever interview participants described a particular policy or project that they felt was important for the Palestinian health system, we asked what they thought would be required to achieve it. Interview participants consistently expressed the view that the necessary human resources existed in Palestine (and among Palestinians living abroad) or could be created relatively quickly—as long as there was a political will among Palestinians to do so, adequate financial resources were available, and the geographic closures ended. We could not verify this view independently. However, the many positive aspects of health and health care in Palestine certainly provide evidence of the considerable skill and motivation of Palestinian health professionals and other stakeholders.

Role of International Donors

International donors have made considerable contributions to the development of the Palestinian health system. In order for the development efforts we have described to be feasible, international donors will need to remain involved for the foreseeable future. Indeed, they will probably need to increase their levels of investment in the health system.

At the same time, we believe that the returns on this investment, in terms of health status and satisfaction with the health system, are likely to be increased if the actions of the donor community are guided by effective local institutions. To this end, care should be taken to use international support to enhance but not replace the responsibility of the MOH and other national institutions for the Palestinian health system. In particular, international support for the Palestinian health system should be closely related to the priorities and targets described in this chapter, to minimize conflict between the national agenda—which is ultimately a government responsibility—and the agendas of particular donors or NGOs. In turn, international donors could use progress toward reforms described in this chapter as benchmarks to gauge whether the MOH and other key institutions are performing effectively.

Limitations of Our Analysis

We recognize that this analysis has a number of important limitations. We sought input from a relatively large number of people involved in or knowledgeable about the Palestinian health system, including people from each sector of the health system, academia, international donor organizations, and relevant Israeli institutions. However, our list of interview participants was neither representative nor exhaustive. For instance, because of travel and time restrictions, we had limited in-person contact with MOH personnel; much interaction took place by telephone. We did not interview health care providers employed in the government health sector or representatives of consumer groups or community organizations. We did not speak with any representatives of Islamic organizations, although Islamic NGOs do play an important role in delivering health care and other social services in Palestine.

The input we received was generally consistent across interview participants. However, it is certainly possible that the stakeholders we did not meet would have provided different information. In addition, we did not attempt to validate the accuracy of the information provided by interview participants, beyond comparing comments to information from other interviews, to published reports, and to our own prior experience. Moreover, many of the reports we reviewed were written by one or more of our interview participants, so that these different sources of information were not entirely independent.

In Closing

Our analysis is intended to inform the health system development efforts of a future independent Palestinian state. Outside analyses—including those conducted by international donors and by research organizations such as RAND—can be valuable. However, we believe that successful health system development in Palestine requires that local stakeholders be committed to and in control of both the overall development process and its substantive details.

Appendix 7.A: Selected Objectives from Prior Palestinian Health Plans

Table 7.A.1 presents objectives from several different substantive areas to illustrate the types of goals included in previous national health plans. Goals are for the period 1999–2003.

Table 7.A.2 presents strategies in the previous national health plan's three main substantive areas. Goals are for the period 2001–2006.

Table 7.A.1
Selected Objectives from the 1999 *National Strategic Health Plan*

Area	Recommendation
Health planning and projects management	Develop national sustainable capacity in health planning, policy development, and project management
	Create an information base for health planning and projects management
	Develop measurable indicators to monitor and evaluate planned activities and programs
	Validate community participation, involvement, and ownership initiated during the process of developing the five-year health plan in all Palestinian districts
	Assist in the development of an organized national system for coordination of health developmental activities
	Develop rational master plans for different categories of hospitals and primary health care facilities
	Develop a national accreditation system for planning health sector facilities
Health management information systems	Develop nationwide computerized communication links facilitating the operation of an effective health management information system to be connected to the national information system that links all Palestinian ministries
	Serve the Palestinian community by a system that collects, tabulates, stores, and makes available information on demography, health status, and health resources for policymakers in the health area
	Develop a well-functioning computerized medical information system at district, regional, and central levels by establishing medical information systems in the West Bank and strengthening the existing one in Gaza
	Develop and implement an extensive training program for selected health personnel representing major health care professions from different settings, including the MOH, hospitals, and primary health care
Health promotion and education: chronic heart disease/stroke	Reduce by 40 percent the level of ill health and death caused by heart disease and stroke
	Reduce by 60 percent the risks associated with heart disease by modifying specific human behaviors
Health promotion and education: maternal and child health	Reduce infant mortality from 24.2 in 1997 to 15 deaths per 1,000 live births
	Reduce maternal mortality and morbidity by 50 percent
	Reduce prenatal and neonatal deaths by 50 percent
	Increase by 50 percent the utilization rate of maternal and child health services, especially postnatal care, throughout Palestine
	Increase vaccination coverage to 100 percent, especially tetanus toxoid for teenagers

SOURCE: PA MOH, 1999.

Table 7.A.2
Selected Objectives from the 2001 *National Plan for Human Resource Development and Education in Health*

Area	Recommendation
Planning for health care human resources in Palestine	Conduct national health planning for the various health professions
	Prepare and/or update databases on health care human resources in Palestine
	Develop national and institutional capacities in health planning and development
	Develop and utilize scientific research in health planning and human resource development and promote decision-linked research in human resource development
	Explore fields of cooperation in planning and human resource development at the national, regional, and international levels
	Improve the image of some health-related professions (e.g., nursing, midwifery, and occupational therapy)
Education and training of human resources	Develop and implement an accreditation system for formal education/training programs of health human resources
	Conduct continuing education activities involving the different health professions' categories based on continuing education priority needs as indicated in Welfare Association, PA, and Ministry of Higher Education, 2001a–f
	Provide scholarships within the next five years for priority specialty qualifications in selected health professions
	Strengthen available academic programs and start new programs according to priorities indicated in Welfare Association, PA, and Ministry of Higher Education, 2001a–f
	Start, upgrade, and develop databases on formal degree-granting educational programs in health
	Utilize technology and varied nontraditional teaching-learning methodologies in educational programs
	Develop continuing education potential
	Strengthen clinical/practical training to support educational programs in health
	Develop a remedial training program for physicians and programs for other health care professionals who need such training
Management of health care human resources	Develop conducive managerial practices in health care human resource development
	Ensure availability of necessary protocols/guidelines/rules and regulations related to human resource development
	Strengthen professional unions/associations and health-related councils to promote human care resource development
	Promote an organizational climate that enhances continuing education and human resource development

SOURCE: Welfare Association, PA, and Ministry of Higher Education, 2001a–f.

Appendix 7.B: Methods

The analyses underlying this chapter were mainly conducted between December 2002 and July 2003.

First, we reviewed previously published academic research and policy analyses regarding health and health care in Palestine to understand the history of the Palestinian health system and the current status of health and health care in Palestine.[39] These materials were available in the form of books, journal articles, reports by government organizations (i.e., the Palestinian and Israeli Ministries of Health), reports by international organizations (e.g., the World Bank, various United Nations agencies, the World Health Organization), reports by Palestinian and international nongovernmental organizations, scientific publications, conference proceedings, working papers, and other formats. We reviewed all such information that we could obtain, with the goal of identifying priorities for health system development in Palestine over the next decade.

Second, we identified and contacted local stakeholders in Palestine and Israel whose input we wanted regarding this analysis, based on their expertise in the organization, operation, and financing of the Palestinian health system. We interviewed each of these experts several times by telephone. Given our project mandate, each person was asked to identify priorities for health system development in Palestine over the next decade. We discussed these issues iteratively with each expert, along with issues we identified from our literature review. We did not use an interview guide for these discussions.

In addition, we asked each expert to recommend additional people whom we could ask for information regarding the Palestinian health system and our analysis. We specifically asked to be referred to people in all sectors of the Palestinian health system; relevant Palestinian and Israeli academics; and people from relevant international organizations, particularly key donors to the Palestinian health system.[40] We tried to contact everyone to whom we were referred. In addition, we decided that it was important to interview certain categories of stakeholders to whom we had not already been referred. They fell into two broad categories: international organizations, particularly donors, and Palestinian women active in health care delivery and health policy. We identified people in these categories through a combination of referral and independent research.

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[39] We include a partial listing in the bibliography. See also the HDIP annotated bibliography of journal articles and other reports on health and health care in Palestine (Barghouthi, Fragiacomo, and Qutteina, 1999; and Barghouthi, Shubita, and Fragiacomo, 2000).

[40] The European Union is sponsoring a comprehensive health sector review on behalf of the PA MOH that overlaps in time and subject with RAND's analysis. We discuss this in additional detail in Appendix 7.D.

In March and April, 2003, we contacted the people to whom we had been referred by fax, mail, email, and/or telephone. We provided materials describing this project, including its background and aims, along with a preliminary list of health system development priorities and a general set of questions we wanted to discuss with them (a sample letter of introduction is included as Appendix 7.C of this chapter). We asked people to meet with us during a visit to Palestine and Israel in May 2003. We scheduled meetings with everybody who said they would be available. No person whom we approached about this project explicitly refused to meet with us, although some people were unavailable for various reasons.

In March 2003, we also held a two-day meeting at RAND's office in Washington, D.C. During that meeting, we discussed the information in the written materials we had reviewed, and we discussed our analysis plans and the strategy for our upcoming trip with several Palestinian and Israeli experts.

In May 2003, Drs. Schoenbaum and Deckelbaum traveled to Palestine and Israel for two weeks.[41] Together with Timea Spitka, we met with the majority of the local stakeholders to whom we had been referred. Nearly all meetings took place face-to-face in Jerusalem or Ramallah. Because Gaza was closed to foreigners during the entire period of this visit, meetings with the Palestinian Ministry of Health in Gaza, and with other relevant stakeholders of that area, had to be postponed or canceled. Where possible, these interviews were conducted by telephone instead, and we were subsequently able to meet with one Gaza contact in Washington, D.C.

In each interview, the questions listed in the letter of introduction served as a general interview guide (see Appendix 7.C). Interview questions were open-ended, so as not to constrain the scope of the information that people provided. Interview participants were asked to base their responses on their own expertise and experience.

Interview participants were asked to allow themselves to be identified in this chapter. However, to help ensure that people felt free to express their views fully, interview participants were assured that no comments would be quoted directly or attributed to them in an identifiable way. We took written notes during all meetings, which we subsequently transcribed. Only we and Timea Spitka had access to the meeting notes. The list of interview participants is included at the end of this appendix.

All interview participants received a draft version of this chapter and were invited to submit comments prior to publication. They were told that we would seriously consider all comments but not necessarily implement them in the final book. This chapter, along with the rest of this book, was also reviewed in accordance with RAND's usual quality assurance procedures.

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[41] Adel Afifi was also scheduled to participate in this trip, but he was unable to do so because of a family emergency.

The following people were interviewed for this chapter:

Hani Abdeen, Al-Quds University
Ziad Abdeen, Al-Quds University
Haidar Abdel-Shafi, Palestine Red Crescent Society
Yehia Abed, Maram
Mahmoud Abu-Hadid, Al-Quds University
Fathi Abumoghli, Palestine Ministry of Health (in association with the World Bank)
Zeid M. Abu Shawish, Palestine Ministry of Health
Hikmat Ajjuri, Palestinian Council of Health
Mamdouh M. Aker
Younis Al-Khatib, Palestine Red Crescent Society
Mirca Barbolini, European Union
Mustafa Barghouthi, Union of Palestinian Medical Relief Committees
Tamara Barnea, JDC-Brookdale Institute
Sherry F. Carlin, United States Agency for International Development
Ellan Coates, Maram
Khuloud Dajani, Al-Quds University
Nahil Dajani, Dajani Maternity Hospital
Rajai Dajani, Dajani Maternity Hospital
Anwar Dudin, Al-Quds University
Rita Giacaman, Birzeit University
P. Gregg Greenough, Johns Hopkins University
Arafat S. Hidmi, Makassed Charitable Society
Rafaella Iodice, European Union
Emil Jarjoui, Palestine Liberation Organization
Anne Johansen, World Bank
Salam Kanaan, World Bank
Umaya Khamash, Maram
Rana Khatib, Birzeit University
Bassim Khoury, Pharmacare PLC
Hanan Halabi, Birzeit University
Samia Haleleh, Birzeit University
Abdullatif S. Husseini, Birzeit University
Rafiq Husseini, Welfare Association
Ajay Mahal, Harvard University
Faris Massoud
Rashad Massoud, University Research Co. LLC
Shlomo Mor-Yosef, Hadassah Medical Organization
Salva Najab, Maram
Joumana Odeh, Happy Child Center
As'ad Ramlawi, Palestine Ministry of Health
Ann Roberts, Maram
Yitzhak Sever, Israel Ministry of Health
Mohammad Shahin, Al-Quds Medical School
Varsen Aghabekian Shahin, Al-Quds University
Toufik Shakhshir
Munther Al Sharif, Palestine Ministry of Health
Hossam K. Sharkawi, Palestine Red Crescent Society
Raghda Shawa
Husam E. Siam, UNRWA
Ricardo Solé Arqués, World Health Organization
Suzy Srouji, United States Agency for International Development
Theodore Tulchinsky, Hebrew University School of Public Health
Henrik Wahlberg, World Health Organization
Laura Wick, Birzeit University

Appendix 7.C: Letter of Introduction Regarding RAND's Health System Analysis

<date>

Dear Sir or Madam:

We are writing to you on behalf of RAND, an independent, non-partisan research organization based in California. With the support of private donors, RAND is analyzing important parameters for the success of a future independent Palestinian state. RAND will distribute the findings from this research to key policy-makers in the United States, Palestine and Israel.

As part of this larger project, our working group is leading an analysis of the Palestinian health system. Our goals are: 1) to understand the strengths and gaps of the current system, with respect to organization, human and physical infrastructure, and financing; 2) to identify major priorities for future development and investment, over approximately the next ten years; and 3) to estimate the financial cost of reaching various development goals.

We are currently planning to visit the region in May to meet with key Palestinian, Israeli and international stakeholders. We would like to speak or meet with you as part of our work. In the meantime, we would like to provide more information about our project and RAND.

About RAND and RAND Health

RAND is an independent, non-profit research organization, with headquarters in Santa Monica, California, and other main offices in Washington, Pittsburgh, and Leiden (the Netherlands). RAND was established in 1948. RAND's mission is to improve policy and decision-making through research and analysis. RAND has a staff of more than 1600. 85% of the research staff hold advanced degrees, with more than 65% having earned PhDs or MDs. RAND's areas of expertise include health, education, international relations, international development, civil and criminal justice, national security, population studies, and science and technology.

The largest single program within RAND, and the largest private health care research organization in the United States, is RAND Health. RAND Health has helped shape private- and public-sector responses to emerging health care issues for more than three decades. Our research has changed how health care is financed and delivered, in the United States and internationally, by providing evidence on:

- the effects of health insurance design and payment policies on health costs and health status
- the measurement of health care quality for physical and mental illness

- the gaps between the medical care people *should* receive and the care they *do* receive
- the cost-effectiveness of interventions to improve health care quality

Every RAND publication, database, and major briefing is carefully reviewed before its release, to ensure that the research is well-designed for the problem, based on sound information, relevant to the client's interests and needs, balanced and independent, and that the research adds value to the research area.

Additional information on RAND is available at http://www.rand.org/, and on RAND Health at http://www.rand.org/health_area/.

About RAND's Palestine Project

RAND's Center for Domestic and International Health Security (part of RAND Health) and its Center for Middle East Public Policy are undertaking an unprecedented multidisciplinary analysis of the parameters central to the success of an independent Palestinian state, over the state's first 8–10 years. The analysis includes consideration of economic, demographic, governance, education, health, public safety, security, and natural resource issues. Where appropriate, the analysis includes consideration of policy alternatives that reflect choices that might face the key participants in the process of creating such a state.

This study adopts a long-term perspective, recognizing that many short-term problems will also have to be solved in the process. It assumes that a successful Palestinian state should ultimately bring stability for Palestinians, Israelis and the region. It also assumes that substantial resources will be required from various sources in order to establish and support the institutions and infrastructure necessary for a successful independent Palestine, and it seeks to estimate the necessary resources associated with key policy alternatives. *By identifying the needs for a viable state and quantifying the costs of such a development, the parties will have a realistic appraisal of what is possible and what it will cost.*

RAND's research on Palestine is being led by a multidisciplinary team of investigators, including: Drs. Kenneth Shine and Jerrold Green (co-Project Directors), Michael Schoenbaum (leader, Health working group), Glenn Robinson (leader, Governance working group), Robert Hunter (leader, Security working group), Jack Riley (leader, Public Safety working group), Mark Bernstein (leader, Natural Resources working group), Cheryl Benard (leader, Education working group), Brian Nichiporuk (leader, Demographics working group), and David Gompert and Richard Neu (senior advisors).

RAND's Palestine project is funded by private donations.

Additional information on RAND's Center for Domestic and International Health Security is available at http://www.rand.org/health/healthsecurity/, and on the Center for Middle East Public Policy at http://www.rand.org/nsrd/cmepp/about.html.

About RAND's Analysis of the Palestinian Health System

RAND's analysis of the Palestinian health system is being led by Drs. Michael Schoenbaum (economist, RAND), Adel Afifi (neuroscientist, University of Iowa), and Rich-

ard Deckelbaum (pediatrician and nutritionist, Columbia University); and advised by Dr. Nicole Lurie (senior natural scientist at RAND and former U.S. Principal Deputy Assistant Secretary of Health).

The overall goals of our analysis of the Palestinian health system are: 1) to understand the strengths and gaps of the current system, with respect to organization, human and physical infrastructure, and financing; 2) to identify major priorities for future development and investment, over approximately the next ten years; and 3) to estimate the financial cost of reaching various development goals.

We recognize that there is a well-established Palestinian national health planning process. This process has led to several National Health Plans that contain detailed targets for improving health status and for developing health manpower and physical infrastructure. Evaluating each of those specific targets is outside the scope of RAND's project. At the same time, one emphasis in all the information we have gathered so far is that there is room to strengthen key Palestinian institutions, particularly relating to planning and coordination—and that such strengthening could considerably improve the health system's performance.

Our project therefore focuses on key institutions and programs that are necessary for the Palestinian health system to operate successfully, and options for strengthening these institutions. These include:

- **National health planning authority,** with responsibility for policies including division of responsibility across public, private, NGO and UNRWA sectors; authorization (certificate of need) for new buildings and expensive equipment; accreditation guidelines for providers, facilities, and education programs; clinical quality improvement; and health care finance
- **Licensing and accreditation bodies,** including for health care providers, delivery facilities, laboratories, educational programs, pharmaceuticals and medical devices
- **Policies for health insurance and finance,** including effective financing mechanisms; defined benefit and payment schedules; and incentives for quality, efficiency and health promotion
- **Prescription drug policy,** including a cost-effective national essential drugs list, policies regarding generic substitution, and efficient purchasing mechanisms
- **Health information systems,** for tracking elements including health and nutritional status, outpatient care, hospital discharges, health care quality, health system staffing, and billing and payments
- **Health manpower strategy,** including strategies to strengthen existing training programs and to meet needs that are currently unmet
- **Research and evaluation capacity,** including health policy and evaluation and biomedical research

In addition, we will examine:

- **Fast-track public and primary health care interventions,** to address current deficiencies and ensure a stable basis for population health that supports longer-term health planning

We recognize that the current security closures and travel restrictions have implications for the Palestinian health system. As above, however, the overall focus of this project is on fostering the success of a future independent Palestinian state. For purposes of this project, we therefore do *not* focus on short-term strategies for operating the health system under the current conditions. Instead, we focus on longer-term health system development, under the assumption of unrestricted travel within the West Bank and Gaza.

Planned Trip to the Region

We are preparing for a trip to Palestine and Israel in May, during which we will meet with key Palestinian, Israeli and international stakeholders regarding the Palestinian health system. ***We would like to speak with you about your work, and meet if possible.*** In our meetings, we will ask people to address the following issues:

1. Which health policy issues require most urgent attention? What five policy changes *can* and *should* be implemented *immediately?*
2. Based on your knowledge of the institutions described above, how well do those institutions currently function in the Palestinian health system? Which institutions particularly need to be strengthened? How could they be strengthened?
3. Have we left out any key institutions that need to be strengthened in the Palestinian health system? Which?
4. What are the major barriers that affect successful development of the Palestinian health system?

Finally, we will want to collect information on the potential costs of implementing various policy options. We will also have other questions related to your area of expertise.

We understand that other organizations are studying the Palestinian health system and providing technical assistance, including the European Union's health sector review on behalf of the Palestinian Ministry of Health. Although our mission is to conduct independent analyses, we will coordinate with these other projects as much as possible.

We will contact your office about meeting with us in May. If you have questions about this project or would like additional information, please feel free to contact any of us directly using the contact information listed above; or through our representative in Jerusalem, Ms. Timea Spitka, at <telephone number>. Thank you.

Respectfully yours,

Michael Schoenbaum, PhD	Richard Deckelbaum, MD	Adel Afifi, MD, MS
Leader, Health Working Group	Consultant	Consultant

Appendix 7.D: Integration with Prior and Concurrent Health Sector Analyses

As we began this project, we learned that the European Union (EU) was sponsoring a comprehensive health sector review on behalf of the Palestinian MOH. This review is being led by the EU, with participation by the World Bank, the WHO, the British Department for International Development, the Italian Cooperation, and possibly others.

Based on draft documents about the health sector review that were provided to RAND in April 2003 and on conversations with participating organizations, we understood the general objectives of the EU health sector review to be similar to those of RAND's project—i.e., to understand the current Palestinian health system and propose options for developing the sector over the coming decade. However, the EU and RAND efforts differ on several dimensions.

The EU review is being conducted on behalf of the Ministry of Health by representatives of organizations that have also been major donors, lenders, and/or providers of technical assistance to the Palestinian health system. At present, the EU project is limited to the health sector.

RAND's review is being conducted independently, and RAND has had no involvement, advisory or otherwise, in the Palestinian health system. In addition, RAND's analysis of the health system is part of a larger, multisector study of policy options for a future Palestinian state.

Overall, however, we view the respective projects as strongly complementary. Following conversations and correspondence with the EU and other members of the review team, we agreed to pursue ongoing communication with the EU team regarding our work plan, analyses, and findings. We interviewed representatives from several of the participating organizations during our visit to Palestine and Israel in May, as listed in Appendix 7.B. The projects have otherwise been conducted independently. Analyses for this chapter were scheduled to be completed before the EU health sector review.

More generally, there have been a number of previous analyses of the Palestinian health system conducted by researchers, NGOs, international donors, and of course the Palestine Council of Health and the MOH. We recognize that most or all of the issues we address here have been addressed in previous plans and analyses. We have tried to apply an independent perspective and to build on and extend previous work to maximize the relevance of this analysis.

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